Sick AG

Claims

1. An apparatus for determining a distance profile comprising a light transmitter for transmitting pulse-like light signals (3) in the direction of a monitored space, a light receiver for receiving light signals reflected/remitted from the monitored space and an evaluation unit (8) for determining distance values in dependence on the light transit time between the transmission and reception of the light signals (3), characterized in that the light transmitter is designed for the simultaneous transmission of a plurality of light signals (3) in the direction of a plurality of reflection/remission points (5) disposed in the monitored space and spaced apart from one another; and in that the light receiver includes a plurality of photodiodes (7) for the reception of light signals reflected/remitted by the reflection/remission points.

2. An apparatus in accordance with claim 1, characterized in that the evaluation unit (8) is designed to calculate distance values in dependence on the light transit time between the transmission of the plurality of light signals (3) and the reception of the light signals by n photodiodes (7), with each distance value being associated with a photodiode (7).

3. An apparatus in accordance with claim 1, characterized in that the plurality of transmitted light signals (3) are components of a fan-shaped light bundle (2).

4. An apparatus in accordance with claim 3, characterized in that the fan-shaped light bundle (3) extends in one plane.

5. An apparatus in accordance with claim 1, characterized in that the light transmitter is designed for the projection of a line of light (5), in particular of a straight line of light, into the monitored space.

6. An apparatus in accordance with claim 1, characterized in that the light transmitter is formed as a laser diode.

7. An apparatus in accordance with claim 1, characterized in that the light receiver is formed as a photodiode row.

8. An apparatus in accordance with claim 1, characterized in that a light deflection device is provided at the light transmitter side.

9. An apparatus in accordance with claim 8, characterized in that the light deflection apparatus at the light transmitter side is designed for the deflection of a fan-shaped light bundle (2) in a direction perpendicular to the plane in which the fan-shaped light bundle (2) extends.

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10. An apparatus in accordance with claim 9, characterized in that the light deflection apparatus is designed for the periodic deflection of the fan-shaped light bundle (2).

11. An apparatus in accordance with claim 8, characterized in that the light receiver is made as a two-dimensional photodiode array.